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RACE AND HISTORY

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RACE AND HISTORY

by

CLAUDE LÉVI-STRAUSS

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THE RACE QUESTION IN MODERN SCIENCE

RACE AND HISTORY

by

CLAUDE LÉVI-STRAUSS

Director of Studies at the
Ecole pratique des hautes études

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I. Race and culture 5
II. The diversity of cultures 8
III. The ethnocentric attitude 11
IV. Archaic and primitive cultures 16
V. The idea of progress 20
VI. "Stationary" and "cumulative" history . . 24
VII. The place of western civilization 30
VIII. Chance and civilization 34
IX. Collaboration between cultures 41
X. The Counter-currents of progress 46
Bibliography 50

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I. RACE AND CULTURE

It may seem somewhat surprising, in a series of booklets intended to combat racial prejudice, to speak of the contributions made by various races of men to world civilization. It would be a waste of time to devote so much talent and effort to demonstrating that, in the present state of scientific knowledge, there is no justification for asserting that any one race is intellectually superior or inferior to another, if we were, in the end, indirectly to countenance the concept of race by seeming to show that the great ethnic groups constituting human kind as a whole have, as such, made their own peculiar contributions to the common heritage.

Nothing could be further from our intentions, for such a course of action would simply result in an inversion of the racist doctrine. To attribute special psychological characteristics to the biological races, with a positive definition, is as great a departure from scientific truth as to do so with a negative definition. It must not be forgotten that Gobineau, whose work was the progenitor of racist theories, regarded "the inequality of the human races" as qualitative, not quantitative; in his view, the great primary races of early man—the white, the yellow and the black—differed in their special aptitudes rather than in their absolute value. Degeneration resulted from miscegenation, rather than from the relative position of individual races in a common scale of values; it was therefore the fate in store for all mankind, since all mankind, irrespective of race, was bound to exhibit an increasing intermixture of blood. The original sin of anthropology, however, consists in its confusion of the idea of race, in the purely biological sense (assuming that there is any factual basis for the idea, even in this limited field—which is disputed by modern genetics), with the sociological and psychological productions of human civilizations. Once he had made this mistake, Gobineau was inevitably committed to the path leading from an honest intellectual error to the unintentional justification of all forms of discrimination and exploitation.

When, therefore, in this paper, we speak of the contributions of different races of men to civilization, we do not mean that the cultural contributions of Asia or Europe, Africa or America are in any way distinctive because these continents are, generally speaking, inhabited by peoples of different racial stocks. If their contributions are distinctive—and there can be little doubt that they are—the fact is to be accounted for by geographical, historical and sociological circumstances, not by special aptitudes inherent in the anatomical or physiological make-up of the black, yellow or white man. It seemed to us, however, that the very effort made in this series of booklets to prove this negative side of the argument, involved a risk of pushing into the background another very important aspect of the life of man—the fact that the development of human life is not everywhere the same but rather takes form in an extraordinary diversity of societies and civilizations. This intellectual, aesthetic and sociological diversity is in no way the outcome of the biological differences, in certain observable features, between different groups of men; it is simply a parallel phenomenon in a different sphere. But, at the same time, we must note two important respects in which there is a sharp distinction. Firstly, the order of magnitude is different. There are many more human cultures than human races, since the first are to be counted in thousands and the second in single units; two cultures developed by men of the same race may differ as much as, or more than, two cultures associated with groups of entirely different racial origin. Secondly, in contrast to the diversity of races, where interest is confined to their historical origin or their distribution over the face of the world, the diversity of cultures gives rise to many problems; it may be wondered whether it is an advantage or a disadvantage for human kind, and there are naturally many subsidiary questions to be considered under this general head.

Last and most important, the nature of the diversity must be investigated even at the risk of allowing the racial prejudices whose biological foundation has so lately been destroyed to develop again on new grounds. It would be useless to argue the man in the street out of attaching an intellectual or moral significance to the fact of having a black or white skin, straight or frizzy hair, unless we had an answer to another question which, as experience proves he will immediately ask: if there are no innate racial aptitudes, how can we explain the fact that the white man's civilization has made the tre-

mendous advances with which we are all familiar while the civilizations of the coloured peoples have lagged behind, some of them having come only half way along the road, and others being still thousands or tens of thousands of years behind the times? We cannot therefore claim to have formulated a convincing denial of the inequality of the human *races*, so long as we fail to consider the problem of the inequality—or diversity—of human *cultures*, which is in fact—however unjustifiably—closely associated with it in the public mind.

If we are to understand how, and to what extent, the various human cultures differ from one another, and whether these differences conflict or cancel one another out or, on the contrary, are all instrumental in forming a harmonious whole, the first thing to do is to draw up a list of them. But here we immediately run into difficulties, for we are forced to recognize that human cultures do not all differ from one another in the same way or on the same level. Firstly, we have societies co-existing in space, some close together and some far apart but, on the whole, contemporary with one another. Secondly, we have social systems that have followed one another in time, of which we can have no knowledge by direct experience. Anyone can become an ethnographer and go out to share the life of a particular society which interests him. But not even the historian or archeologist can have any personal contact with a vanished civilization; all his knowledge must be gleaned from the writings or the monuments which it or other societies have left behind. Nor must we forget that those contemporary societies which have no knowlegde of writing, like those wich we call "savage" or "primitive", were preceded by other forms of society of which we can learn nothing, even indirectly. If we are honest in drawing up our list, we shall have, in such cases, to leave blank spaces, which will probably be far more numerous than the spaces in which we feel we can make some entry. The first thing to be noted is therefore that, in fact in the present, as well as in fact and in the very nature of things in the past, the diversity of human cultures is much greater and richer than we can ever hope to appreciate to the full.

But however humble we may be in our approach, and however well we may appreciate our limitations in this respect, there are other problems to be considered. What are we to understand by "different" cultures? Some cultures appear to qualify for this description, but, if they are derived from a common stock, they cannot differ in the same way as two societies which have had no contacts with one another at any

stage of their development. For instance, the ancient Inca Empire in Peru and the Kingdom of Dahomey in Africa are more absolutely different than are, let us say, England and the United States today, although these two societies also are to be regarded as distinct. Conversely, societies which have been in very close contact since a recent date give the impression of representing a single civilization, whereas in fact they have reached the present stage by different paths, which we are not entitled to ignore. Forces working in contrary directions operate simultaneously in human societies, some being conductive to the preservation and even the accentuation of particularism, while others tend to promote convergence and affinity. Striking instances are to be found in the study of language for, while languages whose origin is the same tend to develop differences from one another—e.g. Russian, French and English—languages of different origin which are spoken in adjacent territories developed common characteristics; Russian, for example, has developed differences from other Slavic languages in certain respects and grown closer, at least in certain phonetic features, to the Finno-Ugrian and Turkish languages spoken in its immediate geographic neighbourhood.

A study of such facts—and we could easily find similar instances in other aspects of civilization, such as social institutions, art and religion—leads us to ask whether, in the inter-relations of human societies, there may not be an *optimum* degree of diversity, which they cannot surpass but which they can also not fall short of without incurring risks. This optimum would vary according to the number of societies, their numerical strength their geographical distance from one another, and the means of communication (material and intellectual) at their disposal. The problem of diversity does not, in fact, arise solely with regard to the inter-relations of cultures; the same problem is found within each individual society with regard to the inter-relations of the constituent groups; the various castes, classes, professions or religious denominations develop certains differences, which each of them considers to be extremely important. It may be wondered whether this internal differentiation does not tend to increase when the society becomes larger and otherwise more homogeneous; this may perhaps have been what happened in ancient India, where the caste system developed as a sequel to the establishment of the Aryan hegemony.

It is thus clear that the concept of the diversity of human

cultures cannot be static. It is not the diversity of a collection of lifeless samples or the diversity to be found in the arid pages of a catalogue. Men have doubtless developed differentiated cultures as a result of geographical distance, the special features of their environment, or their ignorance of the rest of mankind; but this would be strictly and absolutely true only if every culture or society had been born and had developed without the slightest contact with any others. Such a case never occurs however, except possibly in such exceptional instances as that of the Tasmanians (and, even then, only for a limited period). Human societies are never alone; when they appear to be most divided, the division is always between groups or clusters of societies. It would not, for instance, be an unwarranted presumption that the civilizations of North and South America were cut off from almost all contacts with the rest of the world for a period lasting from 10,000 to 25,000 years. But the great section of mankind thus isolated consisted of a multitude of societies, great and small, having very close contacts with one another. Moreover, side by side with the differences due to isolation, there are others equally important which are due to proximity, bred of the desire to assert independence and individuality. Many customs have come into being, not because of an intrinsic need for them or of a favourable chance, but solely because of a group's desire not to be left behind by a neighbouring group which was laying down specific rules in matters in which the first group had not yet thought of prescribing laws. We should not, therefore, be tempted to a piece-meal study of the diversity of human cultures, for that diversity depends less on the isolation of the various groups than on the relations between them.

III. THE ETHNOCENTRIC ATTITUDE

Yet it would seem that the diversity of cultures has seldom been recognized by men for what it is—a natural phenomenon resulting from the direct or indirect contacts between societies; men have tended rather to regard diversity as something abnormal or outrageous; advances in our knowledge of these matters served less to destroy this illusion and replace it by a more accurate picture than to make us accept it or accommodate ourselves to it.

The attitude of longest standing which no doubt has a firm psychological foundation, as it tends to reappear in each one of us when we are caught unawares, is to reject out of hand the cultural institutions—ethical, religious, social or aesthetic which are furthest removed from those with which we indentify ourselves. "Barbarous habits", "not what we do", "ought not to be allowed", etc. are all crude reactions indicative of the same instinctive antipathy, the same repugnance for ways of life, thought or belief to which we are unaccustomed. The ancient world thus lumped together everything not covered by Greek (and later the Greco-Roman) culture under the heading of "barbarian": Western civilization later used the term "savage" in the same sense. Underlying both these epithets is the same sort of attitude. The word "barbarian" is probably connected etymologically with the inarticulate confusion of birdsong, in contra-distinction to the significant sounds of human speech, while "savage"—"of the woods"—also conjures up a brutish way of life as opposed to human civilization. In both cases, there is a refusal even to admit the fact of cultural diversity; instead, anything which does not conform to the standard of the society in which the individual lives is denied the name of culture and relegated to the realm of nature.

There is no need to dwell on this naïve attitude, which is nevertheless deeply rooted in most men, since this booklet —and all those in the same series—in fact refutes it. It will be enough, in this context, to note that a rather interesting paradox lies behind it. This attitude of mind, which excludes

"savages" (or any people one may choose to regard as savages) from human kind, is precisely the attitude most strikingly characteristic of those same savages. We know, in fact, that the concept of humanity as covering all forms of the human species, irrespective of race or civilization, came into being very late in history and is by no means widespread. Even where it seems strongest, there is no certainty—as recent history proves—that it is safe from the dangers of misunderstanding or retrogression. So far as great sections of the human species have been concerned, however, and for tens of thousands of years, there seems to have been no hint of any such idea. Humanity is confined to the borders of the tribe, the linguistic group, or even, in some instances, to the village, so that many so-called primitive peoples describe themselves as "the men" (or sometimes—though hardly more discreetly—as "the good", "the excellent", "the well-achieved"), thus implying that the other tribes, groups or villages have no part in the human virtues or even in human nature, but that their members are, at best, "bad", "wicked", "ground-monkeys", or "lousy eggs". They often go further and rob the outsider of even this modicum of actuality, by referring to him as a "ghost" or an "apparition". In this way, curious situations arise in which two parties at issue present a tragic reflexion of one another's attitude. In the Greater Antilles, a few years after the discovery of America, while the Spaniards were sending out Commissions of investigation to discover whether or not the natives had a soul, the latter spent their time drowning white prisoners in order to ascertain, by long observation, whether or not their bodies would decompose.

This strange and tragic anecdote is a good illustration of the paradox inherent in cultural relativism (which we shall find again elsewhere in other forms); the more we claim to discriminate between cultures and customs as good and bad, the more completely do we identify ourselves with those we would condemn. By refusing to consider as human those who seem to us to be the most "savage" or "barbarous" of their representatives, we merely adopt one of their own characteristic attitudes. The barbarian is, first and foremost, the man who believes in barbarism.

Admittedly the great philosophic and religious systems which humanity has evolved—Buddhism, Christianity or Islam, the Stoic, Kantian of Marxist doctrines—have constantly condemned this aberration. But the simple statement

that all men are naturally equal and should be bound together in brotherhood, irrespective of race or culture, is not very satisfactory to the intellect, for it overlooks a factual diversity which we cannot help but see; and we are not entitled, either in theory or in practice, to behave as if there were no such diversity, simply because we say that it does not affect the essence of the question. The preamble to Unesco's second Statement on the race problem very rightly observes that the thing which convinces the man in the street that there are separate races is "the immediate evidence of his senses when he sees an African, a European, an Asiatic and an American Indian together".

Likewise, the strength and the weakness of the great declarations of human rights has always been that, in proclaiming an ideal, they too often forget that man grows to man's estate surrounded, not by humanity in the abstract, but by a traditional culture, where even the most revolutionary changes leave whole sectors quite unaltered. Such declarations can themselves be accounted for by the situation existing at a particular moment in time and in particular space. Faced with the two temptations of condemning things which are offensive to him emotionally or of denying differences which are beyond his intellectual grasp, modern man has launched out on countless lines of philosophical and sociological speculation in a vain attempt to achieve a compromise between these two contradictory poles, and to account for the diversity of cultures while seeking, at the same time, to eradicate what still shocks and offends him in that diversity.

But however much these lines of speculation may differ, and however strange some of them may be, they all, in point of fact, come back to a single formula, which might probably best be described by the expression *false evolutionism*. In what does this consist? It is really an attempt to wipe out the diversity of cultures while pretending to accord it full recognition. If the various conditions in which human societies are found, both in the past and in far distant lands, are treated as *phases* or *stages* in a single line of development, starting from the same point and leading to the same end, it seems clear that the diversity is merely apparent. Humanity is claimed to be one and the same everywhere, but this unity and identity can be achieved only gradually; the variety of cultures we find in the world illustrates the several stages in a process which conceals the ultimate reality or delays our recognition of it.

This may seem an over-simplification in view of the enormous achievements of Darwinism. But Darwinism is in no way implicated here, for the doctrine of biological evolution, and the pseudo-evolutionism we have in mind, are two very different things. The first was developed as a great working hypothesis, based on observations in which there was very little need for interpretation. The various types in the genealogy of the horse, for instance, can be arranged in an evolutive series for two reasons: firstly, a horse can only be sired by a horse; and secondly, skeletons varying gradually from the most recent to the most ancient forms are found at different levels in the earth, representing earlier and earlier periods of history as we dig deeper. It is thus highly probable that *Hipparion* was the real ancestor of *Equus caballus*. The same reasoning is probably applicable to the human species and the different races constituting it. When, however, we turn from biology to culture, things become far more complicated. We may find material objects in the soil, and note that the form or manufacture of a certain type of object varies progressively according to the depth of the geological strata. But an axe does not give birth to an axe in the physical sense that an animal gives birth to an animal. Therefore, to say that an axe has developed out of another axe is to speak metaphorically and with a rough approximation to truth, but without the scientific exactitude which a similar expression has in biological parlance. What is true of material objects whose physical presence in the earth can be related to determinable periods, is even more true of institutions, beliefs and customs, whose past history is generally a closed book to us. The idea of biological evolution is a hypothesis with one of the highest coefficients of probability to be found in any of the natural sciences, whilst the concept of social or cultural evolution offers at best a tempting, but suspiciously convenient method of presenting facts.

Incidentally, this difference, which is too often overlooked, between true and false evolutionism can be explained by the dates of their development. The doctrine of biological evolution admittedly gave sociological evolutionism a decided fillip but the latter actually preceded the former. Without going back to the views which Pascal took over from antiquity, and looking upon humanity as a living being passing through the successive stages of childhood, adolescence and maturity, we may see in the eighteenth century the elaboration of all the basic images which were later to be bandied about—Vico's

"spirals", and his "three ages" foreshadowing Comte's "three states", and Condorcet's "stairway". Spencer and Tylor, the two founders of social evolutionism, worked out and published their doctrine before the appearance of the *Origin of Species*, or without having read that work. Prior in date to the scientific theory of biological evolution, social evolutionism is thus too often merely a pseudo-scientific mask for an old philosophical problem, which there is no certainty of our ever solving by observation and inductive reasoning.

We have already suggested that, from its own point of view, each society may divide cultures into three categories: contemporary cultures found in another part of the world; cultures which have developed in approximately the same area as the society in question, but at an earlier period; and finally, those earlier in time and occupying a different area in space.

We have seen that our knowledge of these three groups cannot be equally exact. In the last case, when we are concerned with cultures which have left behind no written records or buildings, and which employed very primitive techniques (as is true for one half of the inhabited world and for 90-99 per cent varying according to region, of the time since the dawn of civilization), it may be said that we can really know nothing of them, and that our best efforts at understanding them can be no more than suppositions.

On the other hand, there is a great temptation to try to arrange cultures in the first category in an order representing a succession in time. It is, after all, natural that contemporary societies with no knowledge of electricity and the steam engine should call to mind the corresponding phase in the development of Western civilization. It is natural to compare natives tribes, ignorant of writing and metallurgy, but depicting figures on walls of rock and manufacturing stone implements, with the primitive forms of that same civilization, which, as the traces left behind in the caves of France and Spain bear witness, looked similar. It is in such matters that false evolutionism has mainly been given free reign. But the almost irresistible temptation to indulge in such comparisons whenever opportunity offers (is not the Western traveller wont to see the "Middle Ages" in the East, "the days of Louis XIV" in pre-1914 Peking, and "Stone Age" among the Aborigines in Australia or New Guinea?), is extraordinarily dangerous. We can know only certain aspects of a vanished civilization; and the older the civilization, the fewer are those aspects since we can only have knowledge of things which have survived the assaults of time. There is therefore a ten-

dency to take the part for the whole and to conclude that, since *certain* aspects of two civilizations (one contemporary and the other lost in the past) show similarities, there must be resemblances in *all* aspects. Not only is this reasoning logically indefensible but, in many cases, it is actually refuted by the facts.

Until a relatively recent date, the Tasmanians and Patagonians used chipped stone implements, and certain Australian and American tribes still make such tools. But studying these teaches us very little about the use of similar tools in the palaeolithic period. How were the famous "hand-axes" used? And yet their purpose must have been so specific that their form and manufacture remained rigidly standardized for one or two hundred thousand years over an area stretching from England to South Africa and from France to China. What was the use of the extraordinary flat, triangular Levalloisian pieces? Hundreds of them are found in deposits and yet we have no hypothesis to explain them. What were the so-called *Bâtons de commandement*, made of reindeer antler? What technical methods were used in the Tardenoisian cultures, which have left behind them an incredible number of tiny fragments of chipped stone, in an infinite variety of geometrical shapes, but very few tools adapted to the size of the human hand? All these questions indicate that there may well be one resemblance between palaeolithic societies and certain contemporary native societies; both alike have used chipped-stone tools. But, even in the technological sphere, it is difficult to go further than that; the employment of the material, the types of instruments and therefore the purpose for which they were used, were quite different, and one group can teach us very little about the other in this respect. How then can we gain any idea of the language, social institutions or religious beliefs of the peoples concerned?

According to one of the commonest explanations derived from the theory of cultural evolution, the rock paintings left behind by the middle palaeolithic societies were used for purposes of magic ritual in connexion with hunting. The line of reasoning is as follows: primitive peoples of the present day practise hunting rites, which often seem to us to serve no practical purpose; the many pre-historic paintings on rock walls deep in caves appear to us to serve no practical purpose; the artists who executed them were hunters; they were therefore used in hunting rites. We have only to set out his implicit argument to see how entirely inconsequent it is. It is,

incidentally, most current among non-specialists, for ethnographers, who have had actual dealings with the primitive peoples whom the pseudo-scientist is so cheerfully prepared to serve up for whatever purpose happens to concern him at the moment, with little regard for the true nature of human cultures, agree that there is nothing in the facts observed to justify any sort of hypothesis about these paintings. While we are on the subject of cave paintings, we must point out that, except for the cave paintings found in South Africa (which some hold to be the work of native peoples in recent times), "primitive" art is as far removed from Magdalenian and Aurignacian art as from contemporary European art, for it is marked by a very high degree of stylization, sometimes leading to complete distortion, while prehistoric art displays a striking realism. We might be tempted to regard this characteristic as the origin of European art; but even that would be untrue, since, in the same area, palaeolithic art was succeeded by other forms of a different character; the identity of geographical position does not alter the fact that different peoples have followed one another on the same stretch of earth, knowing nothing or caring nothing for the work of their predecessors, and each bringing in conflicting beliefs, techniques and styles of their own.

The state which the civilizations of America had reached before Columbus' discovery is reminiscent of the neolithic period in Europe. But this comparison does not stand up to closer examination either; in Europe, agriculture and the domestication of animals moved forward in step, whereas in America, while agriculture was exceptionally highly developed, the use of domestic animals was almost entirely unknown or, at all events, extremely restricted. In America, stone tools were still used in a type of agriculture which, in Europe, is associated with the beginnings of metallurgy.

There is no need to quote further instances, for there is another and much more fundamental difficulty in the way of any effort, after discovering the richness and individuality of human cultures, to treat all as the counterparts of a more or less remote period in Western civilization: broadly speaking (and for the time being leaving aside America, to which we shall return later), all human societies have behind them a past of approximately equal length. If we were to treat certain societies as "stages" in the development of certain others, we should be forced to admit that, while something was happening in the latter, nothing—or very little—was

going on in the former. In fact, we are inclined to talk of "peoples with no history" (sometimes implying that they are the happiest). This ellipsis simply means that their history is and will always be unknown to us, not that they actually have no history. For tens and even hundreds of millenaries, men there loved, hated, suffered, invented and fought as others did. In actual fact, there are no peoples still in their childhood; all are adult, even those who have not kept a diary of their childhood and adolescence.

We might, of course, say that human societies have made a varying use of their past time and that some have even wasted it; that some were dashing on while others were loitering along the road. This would suggest a distinction between two types of history: a progressive, acquisitive type, in which discoveries and inventions are accumulated to build up great civilizations; and another type, possibly equally active and calling for the utilization of as much talent, but lacking the gift of synthesis which is the hall-mark of the first. All innovations, instead of being added to previous innovations tending in the same direction, would be absorbed into a sort of undulating tide which, once in motion, could never be canalized in a permanent direction.

This conception seems to us to be far more flexible and capable of differentiation than the over-simplified views we have dealt with in the preceding paragraphs. We may well give it a place in our tentative interpretation of the diversity of cultures without doing injustice to any of them. But before we reach that stage there are several other questions to be considered.

V. THE IDEA OF PROGRESS

We must first consider the cultures in the second category we defined above: the historical predecessors of the "observer's" culture. The situation here is far more complicated than in the cases we have considered earlier. For in this case the hypothesis of evolution, which appears so tenuous and doubtful as a means of classifying contemporary societies occupying different areas in space, seems hard to refute, and would indeed appear to be directly borne out by the facts. We know, from the concordant evidence of archaeology, prehistoric study and palaeontology, that the area now known as Europe was first inhabited by various species of the genus *Homo*, who used rough chipped flint implements; that these first cultures were succeeded by others in which stone was first more skilfully fashioned by chipping, and later ground and polished, while the working of bone and ivory was also perfected; that pottery, weaving, agriculture and stock rearing then came in, associated with a developing use of metals, the stages of which can also be distinguished. These successive forms therefore appear to represent evolution and progress; some are superior and others inferior. But, if all this is true, it is surely inevitable that the distinctions thus made must affect our attitude towards contemporary forms of culture exhibiting similar variations. The conclusions we reached above are thus in danger of being compromised by this new line of reasoning.

The progress which humanity has made since its earliest days is so clear and so striking that an attempt to question it could be no more than an exercise of rhetoric. And yet, it is not as easy as it seems to arrange mankind's achievements in a regular and continuous series. About 50 years ago, scholars had a delightfully simple scheme to represent man's advance: the old stone age, the new stone age, the copper, bronze and iron ages. But in this, everything was over-simplified. We now suspect that stone was sometimes worked simultaneously by the chipping and polishing methods; when the latter replaced the former, it did not simply represent a natural

technical advance from the previous stage, but also an attempt to copy, in stone, the metal arms and tools possessed by other civilizations, more "advanced" but actually contemporary with their imitators. On the other hand, pottery-making, which used to be regarded as a distinctive feature of the so-called "polished stone age", was associated with the chipping process of fashioning stone in certain parts of northern Europe.

To go no further than the period when chipped-stone implements were manufactured, known as the palaeolithic age, it was thought only a few years ago that the variants of this method—characteristic of the "core-tool", "flake-tool" and "blade-tool" industries—represented a historical progression in three stages, known respectively as lower palaeolithic, middle palaeolithic and upper palaeolithic. It is now recognized that these three variants were all found together, representing not stages in a single advance, but aspects or, to use the technical term, "facies" of a technique which may not have been static but whose changes and variations were extremely complex. In fact, the Levallois culture which we have already mentioned, and which reached its peak between the 250th and 70th millenary B.C., attained to a perfection in the art of chipping stone which was scarcely equalled until the end of the neolithic period, 245,000 to 65,000 years later, and which we would find it extremely difficult to copy today.

Everything we have said about the development of cultures is also true of races, although (as the orders of magnitude are different) it is impossible to correlate the two processes. In Europe, Neanderthal Man was not anterior to the oldest known forms of *Homo sapiens*; the latter were his contemporaries and maybe even his predecessors. And it is possible that the most diverse types of *Hominidae* may have been contemporary even though they did not occupy the same parts of the world—"pygmies" living in South Africa, "giants" in China and Indonesia, etc.

Once more, the object of our argument is not to deny the fact of human progress but to suggest that we might be more cautious in our conception of it. As our prehistoric and archaeological knowledge grows, we tend to make increasing use of a spatial scheme of distribution instead of a time scale scheme. The implications are two: firstly, that "progress" (if this term may still be used to describe something very different from its first connotation) is neither continuous nor inevitable; its course consists in a series of leaps and bounds, or, as the biologists would say, mutations. These leaps and

bounds are not always in the same direction; the general trend may change too, rather like the progress of the knight in chess, who always has several moves open to him but never in the same direction. Advancing humanity can hardly be likened to a person climbing stairs and, with each movement, adding a new step to all those he has already mounted; a more accurate metaphor would be that of a gambler who has staked his money on several dice and, at each throw, sees them scatter over the cloth, giving a different score each time. What he wins on one, he is always liable to lose on another, and it is only occasionally that history is "cumulative", that is to say, that the scores add up to a lucky combination.

The case of the Americas proves convincingly that "cumulative" history is not the prerogative of any one civilization or any one period. Man first came to that enormous continent, no doubt in small nomadic groups crossing the Behring Straits during the final stages of the Ice age, at some date which cannot have been much earlier than the 20th millenary B.C. In twenty or twenty-five thousand years, these men produced one of the most amazing examples of "cumulative" history the world has ever seen: exploring the whole range of the resources of their new natural environment, cultivating a wide variety of plants (besides domesticating certain species of animals) for food, medicines and poisons, and—as nowhere else—using poisonous substances as a staple article of diet (e.g. manioc) or as stimulants or anaesthetics; collecting various poisons or drugs for use on the animal species particularly susceptible to each of them; and finally developing certain industries, such as weaving, ceramics and the working of precious metals, to the highest pitch of perfection. To appreciate this tremendous achievement, we need only assess the contribution which America has made to the civilizations of the Old World, starting with the potato, rubber, tobacco and coca (the basis of modern anaesthetics), representing four pillars of Western culture, though admittedly on very different grounds; followed by maize and groundnuts, which were to revolutionize the economy of Africa before perhaps coming into general use as an article of diet in Europe; coca, vanilla, the tomato, the pineapple, pepper, several species of beans, cottons and gourds. Finally, the zero on the use of which arithmetic and, indirectly, modern mathematics are founded, was known and employed by the Maya at least 500 years before it was discovered by the Indian scholars, from whom Europe received it via the Arabs.

Possibly for that reason, the Maya calendar, at the same period of history, was more accurate than that of the Old World. Much has already been written on the question whether the political system of the Inca was socialistic or totalitarian, but, at all events, the ideas underlying it were close to some of those most characteristic of the modern world, and the system was several centuries ahead of similar developments in Europe. The recent revival of interest in curare would serve to remind us, if a reminder were needed, that the scientific knowledge of the American Indians concerning many vegetable substances not used elsewhere in the world may even now have much to teach the rest of the globe.

VI. "STATIONARY" AND "CUMULATIVE" HISTORY

The foregoing discussion of the American case would suggest that we ought to consider the difference between "stationary history" and "cumulative history" rather more carefully. Have we not, perhaps, acknowledged the "cumulative" character of American history simply because we recognize America as the source of a number of contributions we have taken from it, or which are similar to those we ourselves have made? What would be the observer's attitude towards a civilization which had concentrated on developing values of its own, none of which was likely to affect his civilization? Would he not be inclined to describe that civilization as "stationary"? In other words, does the distinction between the two types of history depend on the intrinsic nature of the cultures to which the terms are applied, or does it not rather result from the ethnocentric point of view which we always adopt in assessing the value of a different culture? We should thus regard as "cumulative" any culture developing in a direction similar to our own, that is to say, whose development would appear to us to be significant. Other cultures, on the contrary, would seem to us to be "stationary", not necessarily because they are so in fact, but because the line of their development has no meaning for us, and cannot be measured in terms of the criteria we employ.

That this is indeed so is apparent from even a brief consideration of the cases in which we apply the same distinction, not in relation to societies other than our own, but within our own society. The distinction is made more often than we might think. People of advanced years generally consider that history during their old age is stationary, in contrast to the cumulative history they saw being made when they were young. A period in which they are no longer actively concerned, when they have no part to play, has no real meaning for them; nothing happens, or what does happen seems to them to be unproductive of good; while their grandchildren throw themselves into the life of that same period with all the passionate enthusiasm which their elders have forgotten.

The opponents of a political system are disinclined to admit that the system can evolve; they condemn it as a whole, and would excise it from history as a horrible interval when life is at a standstill only to begin again when the interval is over. The supporters of the régime hold quite a different view, especially, we may note, when they take an intimate part, in a high position, in the running of the machine. The quality of the history of a culture or a cultural progression or, to use a more accurate term, its *eventfulness*, thus depends not on its intrinsic qualities but on our situation with regard to it and on the number and variety of our interests involved.

The contrast between progressive and stagnant cultures would thus appear to result, in the first place, from a difference of focus. To a viewer gazing through a microscope focused on a certain distance from the objective, bodies placed even a few hundredths of a millimetre nearer or further away will appear blurred and "wolly", or may even be invisible; he sees through them. Another comparison may be made to disclose the same illusion. It is the illustration used to explain the rudiments of the theory of relativity. In order to show that the dimensions and the speed of displacement of a body are not absolute values but depend on the position of the observer, it is pointed out that, to a traveller sitting at the window of a train, the speed and length of other trains vary according to whether they are moving in the same or the contrary direction. Any member of a civilization is as closely associated with it as this hypothetical traveller is with his train for, from birth onwards, a thousand conscious and unconscious influences in our environment instil into us a complex system of criteria, consisting in value judgments, motivations and centres of interest, and including the conscious reflexion upon the historical development of our civilization which our education imposes and without which our civilization would be inconceivable or would seem contrary to actual behaviour. Wherever we go, we are bound to carry this system of criteria with us, and external cultural phenomena can be observed only through the distorting glass it interposes, even when it does not prevent us from seeing anything at all.

To a very large extent, the distinction between "moving cultures" and "static cultures" is to be explained by a difference of position similar to that which makes our traveller think that a train, actually moving, is either travelling forward or stationary. There is, it is true, a difference, whose

importance will be fully apparent when we reach the stage —already foreshadowed—of seeking to formulate a general theory of relativity in a sense different from that of Einstein, i.e. applicable both to the physical and to the social sciences: the process seems to be indentical in both cases, but the other way round. To the observer of the physical world (as the example of the traveller shows) systems developing in the same direction as his own appear to be motionless, while those which seem to move swiftest are moving in different directions. The reverse is true of cultures, since they appear to us to be in more active development when moving in the same direction as our own, and stationary when they are following another line. In the social sciences, however, speed has only a metaphorical value. If the comparison is to hold, we must substitute for this factor *information* or *meaning*. We know, of course, that it is possible to accumulate far more information about a train moving parallel to our own at approximately the same speed (by looking at the faces of the travellers, counting them, etc.) than about a train which we are passing or which is passing us at a high speed, or which is gone in a flash because it is travelling in a different direction. In the extreme case, it passes so quickly that we have only a confused impression of it, from which even the indications of speed are lacking; it is reduced to a momentary obscuration of the field of vision; it is no longer a train; it no longer has any *meaning*. There would thus seem to be some relationship between the physical concept of *apparent movement* and another concept involving alike physics, psychology and sociology—the concept of the *amount of information* capable of passing from one individual to another or from one group to another, which will be determined by the relative diversity of their respective cultures.

Whenever we are inclined to describe a human culture as stagnant or stationary, we should therefore ask ourselves whether its apparent immobility may not result from our ignorance of its true interests, whether conscious or unconscious, and whether, as its criteria are different from our own, the culture in question may not suffer from the same illusion with respect to us. In other words, we may well seem to one another to be quite uninteresting, simply because we are dissimilar.

For the last two or three centuries, the whole trend of Western civilization has been to equip man with increasingly powerful mechanical resources. If this criterion is accepted,

the quantity of energy available for each member of the population will be taken as indicating the relative level of development in human societies. Western civilization, as represented in North America, will take first place, followed by the European societies, with a mass of Asiatic and African societies, rapidly becoming indistinguishable from one another, bringing up the rear. But these hundreds, or even thousands of societies which are commonly called "underdeveloped" and "primitive", and which merge into an undifferentiated mass when regarded from the point of view we have just described (and which is hardly appropriate in relation to them, since they have had no such line of development or, if they have, it has occupied a place of very secondary importance) are by no means identical. From other points of view, they are diametrically opposed to one another; the classification of societies will therefore differ according to the point of view adopted.

If the criterion chosen had been the degree of ability to overcome even the most inhospitable geographical conditions, there can be scarcely any doubt that the Eskimos, on the one hand, and the Bedouins, on the other, would carry off the palm. India has been more successful than any other civilization in elaborating a philosophical and religious system, and China, a way of life capable of minimizing the psychological consequences of over-population. As long as 13 centuries ago, Islam formulated a theory that all aspects of human life—technological, economic, social and spiritual—are closely interrelated—a theory that has only recently been rediscovered in the West in certain aspects of Marxist thought and in the development of modern ethnology. We are familiar with the pre-eminent position in the intellectual life of the Middle Ages which the Arabs owed to this prophetic vision. The West, for all its mastery of machines, exhibits evidence of only the most elementary understanding of the use and potential resources of that super-machine, the human body. In this sphere, on the contrary, as on the related question of the connexion between the physical and the mental, the East and the Far East are several thousand years ahead; they have produced the great theoretical and practical *summae* represented by Yoga in India, the Chinese "breath-techniques", or the visceral control of the ancient Maoris. The cultivation of plants without soil, which has recently attracted public attention, was practised for centuries by certain Polynesian peoples, who might also have taught the world the art of navigation,

and who amazed it, in the eighteenth century, by their revelation of a freer and more generous type of social and ethical organization than had previously been dreamt of.

In all matters touching on the organization of the family and the achievement of harmonious relations between the family group and the social group, the Australian aborigines, though backward in the economic sphere, are so far ahead of the rest of mankind that, to understand the careful and deliberate systems of rules they have elaborated, we have to use all the refinements of modern mathematics. It was they in fact who discovered that the ties of marriage represent the very warp and woof of society, while other social institutions are simply embroideries on that background; for, even in modern societies, where the importance of the family tends to be limited, family ties still count for much: their ramifications are less extensive but, at the point where one tie ceases to hold, others, involving other families, immediately come into play. The family connexions due to inter-marriage may result in the formation of broad links between a few groups, or of narrow links between a great number of groups; whether they are broad or narrow, however, it is those links which maintain the whole social structure and to which it owes its flexibility. The Australians, with an admirable grasp of the facts, have converted this machinery into terms of theory, and listed the main methods by which it may be produced, with the advantages and drawbacks attaching to each. They have gone further than empirical observation to discover the mathematical laws governing the systems, so that it is no exaggeration to say that they are not merely the founders of general sociology as a whole, but are the real innovators of measurement in the social sciences.

The wealth and boldness of aesthetic imagination found in the Melanesians, and their talent for embodying in social life the most obscure products of the mind's subconscious activity, mark one of the highest peaks to which men have attained in these two directions. The African contribution is more complex, but also less obvious, for we have only recently suspected what an important part the continent had played as the cultural melting pot of the Old World—the place where countless influences came together and mingled to branch out anew or to lie dormant but, in every case, taking a new turn. The Egyptian civilization, whose importance to mankind is common knowledge, can be understood only when it is viewed as the co-product of Asia and Africa: and the great

political systems of ancient Africa, its legal organization, its philosophical doctrines which for so long remained unknown to Western students, its plastic arts and music, systematically exploring all the opportunities opened up by each of these modes of expression, are all signs of an extraordinarily fertile past. There is, incidentally, direct evidence of this great past in the perfection of the ancient African methods of working bronze and ivory, which were far superior to any employed in the West at the same period. We have already referred to the American contribution and there is no need to revert to it now.

Moreover, it is unwise to concentrate attention too much upon these isolated contributions, for they might give us the doubly false impression that world civilization is a sort of motley. Too much publicity has been given to the various peoples who were first with any discovery: the Phoenicians with the use of the alphabet; the Chinese with paper, gunpowder and the compass; the Indians with glass and steel. These things in themselves are less important than the way in which each culture puts them together, adopts them or rejects them. And the originality of each culture consists rather in its individual way of solving problems, and in the perspective in which it views the general values which must be approximately the same for all mankind, since all men, without exception, possess a language, techniques, a form of art, some sort of scientific knowledge, religious beliefs, and some form of social, economic and political organization. The relations are never quite the same, however, in every culture, and modern ethnology is concentrating increasingly on discovering the underlying reasons for the choices made, rather than on listing mere external features.

It may perhaps be objected that such arguments are theoretical. As a matter of abstract logic, it may be said, it is possible that no culture is capable of a true judgment of any other, since no culture can lay aside its own limitations, and its appreciation is therefore inevitably relative. But look around you; mark what has been happening in the world for the past 100 years, and all your speculations will come to nought. Far from "keeping themselves to themselves", all civilizations, one after the other, recognize the superiority of one of their number—Western civilization. Are we not witnesses to the fact that the whole world is gradually adopting its technological methods, its way of life, its amusements and even its costume? Just as Diogenes demonstrated movement by walking, it is the course followed by all human cultures, from the countless thousands of Asia to the lost tribes in the remote fastnesses of the Brazilian or African jungles which proves, by the unanimous acceptance of a single form of human civilization, such as history has never witnessed before, that that civilization is superior to any other; the complaint which the "underdeveloped" countries advance against the others at international meetings is not that they are being westernized, but that there is too much delay in giving them the means to westernize themselves.

This is the most difficult point in our argument; indeed it would be of no use to attempt to defend the individuality of human cultures against those cultures themselves. Moreover, it is extremely difficult for an ethnologist to assess at its true value such a phenomenon as the universal acceptance of Western civilization. There are several reasons for this fact. In the first place, there has probably never before in history been a world civilization or, if any paralled does exist, it must be sought in remote pre-historic times, about which we know practically nothing. Secondly, there is very considerable doubt about the permanence of this phenomenon. It is a fact that for the past 150 years there has been a tendency for Western civilization to spread throughout the world, either

in its entirety or by the development of certain of its key features, such as industrialization; and that, where other cultures are seeking to preserve some part of their traditional heritage, the attempt is usually confined to the superstructure of society, thet is to say, to the least enduring aspects of a culture, which it may be expected will be swept away by the far more radical changes which are taking place. The process is still going on, however, and we cannot yet know what the result will be. Will it end in the complete westernization of our planet, with Russian or American variations? Will syncretic forms come into being, as seems possible so far as the Islamic world, India and China, are concerned? Or is the tide already on the turn and will it now ebb back, before the imminent collapse of the Western world, brought to ruin, like the prehistoric monsters, by a physical expansion out of proportion to the structure on which their working depends? We must take all these possibilities into account in attempting to assess the process going on under our eyes, whose agents, instruments or victims we are, whether we know it or not.

In the first place, we may note that acceptance of the Western way of life, or certain aspects of it, is by no means as spontaneous as Westerners would like to believe. It is less the result of free choice than of the absence of any alternative. Western civilization has stationed its soldiers, trading posts, plantations and missionaries throughout the world; directly or indirectly it has intervened in the lives of the coloured peoples; it has caused a revolutionary upheaval in their traditional way of life, either by imposing its own customs, or by creating such conditions as to cause the collapse of the existing native patterns without putting anything else in their place. The subjugated and disorganized peoples have therefore had no choice but to accept the substitute solutions offered them or, if they were not prepared to do that, to seek to imitate Western ways sufficiently to be able to fight them on their own ground. When the balance of power is not so unequal, societies do not so easily surrender; their *Weltanschauung* tends rather to be similar to that of this poor tribe in eastern Brazil, whose members adopted the ethnographer, Curt Nimuendaju, as one of themselves and who, whenever he returned to them after a visit to civilization, would weep for pity to think of the sufferings he must have endured so far away from the only place—their village—where, in their opinion, life was worth living.

Nevertheless, this reservation merely shifts the question to

another point. If Western culture's claim to superiority is not founded upon free acceptance, must it not be founded upon its greater vitality and energy, which have enabled it to compel acceptance? Here we are down to bedrock. For this inequality of force is not to be accounted for by the subjective attitude of the community as a whole, as was the acceptance we were discussing above. It is an objective fact, and can only be explained by objective causes.

This is not the place to embark on a study of the philosophy of civilization; volumes might be devoted to a discussion of the nature of the values professed by Western civilization. We shall deal only with the most obvious of those values, those that are least open to question. They would seem to be two: in the first place, to borrow Dr. Leslie White's phrase, Western civilization seeks continually to increase the *per capita* supply of energy; secondly, it seeks to protect and prolong human life. To put the matter in a nutshell, the second aspect may be regarded as a derivative of the first, since the absolute quantity of energy available increases in proportion to the length and health of the individual life. For the sake of avoiding argument, we may also admit at once that compensatory phenomena, acting, as it were, as a brake, may go with these developments, such as the great slaughters of world warfare and the inequalities in the consumption of available energy between individuals and classes.

Once this is admitted, it is immediately apparent that, while Western civilization may indeed have devoted itself to these forms of development, to the exclusion of all others—wherein perhaps its weakness lies—it is certainly not the only civilization which has done so. All human societies, from the earliest times, have acted in the same way: and very early and primitive societies, which we should be inclined to compare with the "barbarian" peoples of today, made the most decisive advances in this respect. At present, their achievements still constitute the bulk of what we call civilization. We are still dependent upon the tremendous discoveries which marked the phase we describe, without the slightest exaggeration, as the neolithic revolution: agriculture, stock-rearing, pottery, weaving. In the last eight or ten thousand years, all we have done is to improve all these "arts of civilization".

Admittedly, some people exhibit an unfortunate tendency to regard only the more recent discoveries as brought about by human effort, intelligence and imagination, while the discoveries humanity made in the "barbarian" period are

regarded as due to chance, so that, upon the whole, humanity can claim little credit for them. This error seems to us so common and so serious, and is so likely to prevent a proper appreciation of the relations between cultures, that we think it essential to clear it up at once and for all.

VIII. CHANCE AND CIVILIZATION

Treatises on ethnology, including some of the best, tell us that man owes his knowledge of fire to the accident of lightning or of a bush fire; that the discovery of a wild animal accidentally roasted in such circumstances revealed to him the possibility of cooking his food; and that the invention of pottery was the result of someone's leaving a lump of clay near a fire. The conclusion seems to be that man began his career in a sort of technological golden age, when inventions could, as it were, be picked off the trees as easily as fruit or flowers. Only modern man would seem to find it necessary to strain and toil; only to modern man would genius seem to grant a flash of insight.

This naïve attitude is the result of a complete failure to appreciate the complexity and diversity of operations involved in even the most elementary technical processes. To make a useful stone implement, it is not enough to keep on striking a piece of flint until it splits; this became quite apparent when people first tried to reproduce the main types of prehistoric tools. That attempt—in conjunction with observation of the same methods still in use among certain native peoples—taught us that the processes involved are extremely complicated, necessitating, in some cases, the prior manufacture of veritable "chipping tools"; hammers with a counterweight to control the impact and direction of the blow; shock-absorbers to prevent the vibration from shattering the flake. A considerable body of knowledge about the local origin of the materials employed, the processes of extracting them, their resistance and structure, is also necessary; so is a certain muscular skill and "knack", acquired by training; in short, the manufacture of such tools calls for a "lithurgy" matching, *mutatis mutandis*, the various main divisions of metallurgy.

Similarly, while a natural conflagration might on occasion broil or roast a carcass, it is very hard to imagine (except in the case of volcanic eruptions, which are restricted to a relatively small number of areas in the world) that it could suggest

boiling or steaming food. The latter methods of cooking, however, are no less universally employed than the others. There is, therefore, no reason for ruling out invention, which must certainly have been necessary for the development of the latter methods, when trying to explain the origin of the former.

Pottery is a very good instance, for it is commonly believed that nothing could be simpler than to hollow out a lump of clay and harden it in the fire. We can only suggest trying it. In the first place, it is essential to find clays suitable for baking; but while many natural conditions are necessary for this purpose, none of them is sufficient in itself, for no clay would, after baking, produce a receptable suitable for use unless it were mixed with some inert body chosen for its special properties. Elaborate modelling techniques are necessary to make possible the achievement of keeping in shape for some time a plastic body which will not "hold" in the natural state, and simultaneously to mould it; lastly, it is necessary to discover the particular type of fuel, the sort of furnace, the degree of heat, and the duration of the baking process which will make the clay hard and impermeable and avoid the manifold dangers of cracking, crumbling and distortion. Many other instances might be quoted.

There are far too many complicated operations involved for chance to account for all. Each one by itself means nothing, and only deliberate imaginative combination, based on research and experiment, can make success possible. Chance admittedly has an influence, but, by itself, produces no result. For about 2,500 years, the Western world knew of the existence of electricity—which was no doubt discovered by accident—but that discovery bore no fruit until Ampère and Faraday and others set deliberately to work on the hypotheses they had formulated. Chance played no more important a part in the invention of the bow, the boomerang or the blow-pipe, in the development of agriculture or stock-rearing, than in the discovery of penicillin, into which, of course, we know it entered to some extent. We must therefore distinguish carefully between the transmission of a technique from one generation to another, which is always relatively easy, as it is brought about by daily observation and training, and the invention and improvement of new techniques by each individual generation. The latter always necessitate the same power of imagination and the same tireless efforts on the part of certain individuals, whatever may be the particular technique in question. The

societies we describe as "primitive" have as many Pasteurs and Palissys as the others.

We shall shortly come back to chance and probability, but in a different position and a different role; we shall not advance them as a simple explanation for the appearance of full-blown inventions, but as an aid to the interpretation of a phenomenon found in another connexion—the fact that, in spite of our having every reason to suppose that the quantity of imagination, inventive power and creative energy has been more or less constant throughout the history of mankind, the combination has resulted in important cultural mutations only at certain periods and in certain places. Purely personal factors are not enough to account for this result: a sufficient number of individuals must first be psychologically predisposed in a given direction, to ensure the inventor's immediate appeal to the public; this condition itself depends upon the combination of a considerable number of other historical, economic and sociological factors. We should thus be led, in order to explain the differences in the progress of civilizations, to invoke so many complex and unrelated causes that we could have no hope of understanding them, either for practical reasons, or even for theoretical reasons, such as the inevitable disturbances provoked by the very use of mass observation methods. In order to untangle such a skein of countless filaments, it would in fact be necessary to submit the society in question (and the surrounding world) to a comprehensive ethnographical study covering every moment of its life. Even apart from the enormous scope of the undertaking, we know that ethnographers working on an infinitely smaller scale often find their opportunities for observation limited by the subtle changes introduced by their very presence in the human group they are studying. We also know that, in modern societies, one of the most efficient methods of sounding reactions—public opinion polls—tend to modify opinion at the same time, since they introduce among the population a factor which was previously absent—awareness of their own opinions.

This justifies the introduction into the social sciences of the concept of probability, which has long since been recognized in certain branches of physics, e.g. thermodynamics. We shall return to this question; for the time being we may content ourselves with a reminder that the complexity of modern discoveries is not the result of the more common occurrence or better supply of genius among our contem-

poraries. Rather the reverse, since we have seen that, through the centuries, the progress of each generation depends merely on its adding a constant contribution to the capital inherited from earlier generations. Nine-tenths of our present wealth is due to our predecessors—even more if the date when the main discoveries made their appearance is assessed in relation to the approximate date of the dawn of civilization. We then find that agriculture was developed during a recent phase, representing 2 per cent of that period of time; metallurgy would represent 0.7 per cent, the alphabet 0.35 per cent, Galileo's physics 0.035 per cent and Darwin's theories 0.009 per cent.[1] The whole of the scientific and industrial revolution of the West would therefore fall within a period equivalent to approximately one-half of one-thousandth of the life span of humanity to date. Some caution therefore seems advisable in asserting that this revolution is destined to change the whole meaning of human history.

It is nevertheless true—and this we think finally sums up our problem—that, from the point of view of technical inventions (and the scientific thought which makes such inventions possible), Western civilization has proved itself to be more "cumulative" than other civilizations. Starting with the same initial stock of neolithic culture, it successfully introduced a number of improvements (alphabetic script, arithmetic and geometry), some of which, incidentally, it rapidly forgot; but, after a period of stagnation, lasting roughly for 2,000 or 2,500 years (from the first millenary B.C. until approximately the eighteenth century A.D.), it suddenly produced an industrial revolution so wide in scope, so comprehensive and so far-reaching in its consequences that the only previous comparison was the neolithic revolution itself.

Twice in its history, at an interval of approximately 10,000 years, then, humanity has accumulated a great number of inventions tending in the same direction; enough such inventions, exhibiting a sufficient degree of continuity have come close enough together in time for technical co-ordination to take place at a high level; this co-ordination has brought about important changes in man's relations with nature, which, in their turn, have made others possible. This process, which has so far occurred twice, and only twice, in the history of humanity, may be illustrated by the simile of a chain

1. Leslie A. White, *The Science of Culture*, New York, 1949, p. 356.

reaction brought about by catalytic agents. What can account for it?

First of all, we must not overlook the fact that other revolutions with the same cumulative features may have occurred elsewhere and at other times, but in different spheres of human activity. We have explained above why our own industrial revolution and the neolithic revolution (which preceded it in time but concerned similar matters) are the only groups of events which we can appreciate as revolutions, because they are measurable by our criteria. All the other changes which have certainly come about are only partially perceptible to us, or are seriously distorted in our eyes. They cannot have any meaning for modern Western man (or, at all events, not their full meaning); they may even be invisible to him.

Secondly, the case of the neolithic revolution (the only one which modern Western man can visualize clearly enough) should suggest a certain moderation of the claims he may be tempted to make concerning the preeminence of any given race, region or country. The industrial revolution began in Western Europe, moving on to the United States of America and then to Japan; since 1917 it has been gathering momentum in the Soviet Union, and in the near future, no doubt, we shall see it in progress elsewhere; now here, now there, within a space of 50 years, it flares up or dies down. What then of the claims to be first in the field, on which we pride ourselves so much, when we have to take into account thousands upon thousands of years?

The neolithic revolution broke out simultaneously, to within 1,000 or 2,000 years, around the Aegean, in Egypt, the Near East, the Valley of the Indus, and China; and since radioactive carbon has been used for determining archaeological ages, we are beginning to suspect that the neolithic age in America is older than we used to think and cannot have begun much later than in the Old World. It is probable that three or four small valleys might claim to have led in the race by a few centuries. What can we know of that today? On the other hand, we are certain that the question of who was first matters not at all, for the very reason that the simultaneity of the same technological upheavals (closely followed by social upheavals) over such enormous stretches of territory, so remote from one another, is a clear indication that they resulted not from the genius of a given race or culture but from conditions so generally operative that they are beyond the conscious sphere of man's thought. We can therefore be sure

that, if the industrial revolution had not begun in North-Western Europe, it would have come about at some other time in a different part of the world. And if, as seems probable, it is to extend to cover the whole of the inhabited globe, every culture will introduce into it so many contributions of its own that future historians, thousands of years hence, will quite rightly think it pointless to discuss the question of which culture can claim to have led the rest 100 or 200 years.

If this is admitted, we need to introduce a new qualification, if not of the truth, at least of the precision of our distinction between stationary history and cumulative history. Not only is this distinction relative to our own interests, as we have already shown, but it can never be entirely clear cut. So far as technical inventions are concerned, it is quite certain that no period and no culture is absolutely stationary. All peoples have a grasp of techniques, which are sufficiently elaborate to enable them to control their environment and adapt, improve or abandon these techniques as they proceed. If it were not so, they would have disappeared long since. There is thus never a clear dividing line between "cumulative" and "non-cumulative" history; all history is cumulative and the difference is simply of degree. We know, for instance, that the ancient Chinese and the Eskimos had developed the mechanical arts to a very high pitch; they very nearly reached the point at which the "chain reaction" would set in and carry them from one type of civilization to another. Everyone knows the story of gunpowder; from the technical point of view, the Chinese had solved all the problems involved in its use save that of securing a large-scale effect. The ancient Mexicans were not ignorant of the wheel, as is often alleged; they were perfectly familiar with it in the manufacture of toy animals on wheels for children to play with; they merely needed to take one more step forward to have the use of the cart.

In these circumstances, the problem of the relatively small number (for each individual system of criteria) of "more cumulative" cultures, as compared with the "less cumulative" cultures, comes down to a problem familiar in connexion with the theory of probabilities. It is the problem of determining the relative probability of a complex combination, as compared with other similar but less complex combinations. In roulette, for instance, a series of two consecutive numbers (such as 7 and 8, 12 and 13, 30 and 31) is quite frequent; a series of three is rarer, and a series of four

very much more so. And it is only once in a very large number of spins that a series of six, seven or eight numbers may occur in their natural order. If our attention is concentrated exclusively on the long series (if, for instance, we are betting on series of five consecutive numbers), the shorter series will obviously mean no more to us than a non-consecutive series. But this is to overlook the fact that they differ from the series in which we are interested only by a fraction and that, when viewed from another angle, they may display a similar degree of regularity. We may carry our comparison further. Any player who transferred all his winnings to longer and longer series of numbers might grow discouraged, after thousands and millions of tries, at the fact that no series of nine consecutive numbers ever turned up, and might come to the conclusion that he would have been better advised to stop earlier. Yet there is no reason why another player, following the same system but with a different type of series (such as a certain alternation between red and black or between odd and even) might not find significant combinations where the first player would see nothing but confusion. Mankind is not developing along a single line. And if, in one sphere, it appears to be stationary or even retrograde, that does not mean that, from another point of view, important changes may not be taking place in it.

The great eighteenth century Scottish philosopher, Hume, set out one day to clear up the mistaken problem which has puzzled many people, why not all women, but only a small minority, are pretty. He had no difficulty in showing that the question means nothing at all. If all women were at least as pretty as the most beautiful woman of our acquaintance, we should think they were all ordinary and should reserve the adjective for the small minority who surpassed the average. Similarly, when we are interested in a certain type of progress, we restrict the term "progressive" to those cultures which are in the van in that type of development, and pay little attention to the others. Progress thus never represents anything more than the maximum progress in a given direction, pre-determined by the interests of the observer.

IX. COLLABORATION BETWEEN CULTURES

Lastly, there is one more point of view from which we must consider our problem. A gambler such as we have discussed in the preceding paragraphs, who placed his bets only upon the longest series (however arranged), would almost certainly be ruined. But this would not be so if there were a coalition of gamblers betting on the same series at several different tables, with an agreement that they would pool the numbers which each of them might require to proceed with his series. For if I, for instance, have already got 21 and 22 myself, and need 23 to go on, there is obviously more chance of its turning up if 10 tables, instead of only one, are in play.

The situation of the various cultures which have achieved the most cumulative forms of history is very similar. Such history has never been produced by isolated cultures but by cultures which, voluntarily or involuntarily, have combined their play and, by a wide variety of means (migration, borrowing, trade and warfare), have formed such *coalitions* as we have visualized in our example. This brings out very clearly the absurdity of claiming that one culture is superior to another. For, if a culture were left to its own resources, it could never hope to be "superior"; like the single gambler, it would never manage to achieve more than short series of a few units, and the prospect of a long series' turning up in its history (though not theoretically impossible) would be so slight that all hope of it would depend on the ability to continue the game for a time infinitely longer than the whole period of human history to date. But, as we said above, no single culture stands alone; it is always part of a coalition including other cultures, and, for that reason, is able to build up cumulative series. The probability of a long series' appearing naturally depends on the scope, duration and variation allowed for in the organization of the coalition.

Two consequences follow.

In the course of this study, we have several times raised the question why mankind remained stationary for nine-tenths or even more of its history; the earliest civilizations date back

from 200,000 to 500,000 years, while living conditions have been transformed only in the last 10,000 years. If we are correct in our analysis, the reason was not that palaeolithic man was less intelligent or less gifted than his neolithic successor, but simply that, in human history, the combination took a time to come about; it might have occurred much earlier or much later. There is no more significance in this than there is in the number of spins a gambler has to wait before a given combination is produced; it might happen at the first spin, the thousandth, the millionth or never. But, throughout that time of waiting, humanity, like the gambler, goes on betting. Not always of its own free will, and not always appreciating exactly what it is doing, it "sets up business" in culture, embarks on "operation civilization", achieving varying measures of success in each of its undertakings. In some cases, it very nearly succeeds, in others, it endangers its earlier gains. The great simplifications which are permissible because of our ignorance of most aspects of prehistoric societies help to illustrate more closely this hesitant progress, with its manifold ramifications. There can be no more striking examples of regression than the descent from the peak of Levallois culture to the mediocrity of the Mousterian civilization, or from the splendour of the Aurignacian and Solutrean cultures to the rudeness of the Magdalenean, and to the extreme contrasts we find in the various aspects of mesolithic culture.

What is true in time is equally true in space, although it must be expressed in a different way. A culture's chance of uniting the complex body of inventions of all sorts which we describe as a civilization depends on the number and diversity of the other cultures with which it is working out, generally involuntarily, a common strategy. Number and diversity: a comparison of the Old World with the New on the eve of the latter's discovery provides a good illustration of the need for these two factors.

Europe at the beginning of the Renaissance was the meeting-place and melting-pot of the most diverse influences: the Greek, Roman, Germanic and Anglo-Saxon traditions combined with the influences of Arabia and China. Pre-Columbian America enjoyed no fewer cultural contacts, quantitatively speaking, as the various American cultures maintained relations with one another and the two Americas together represent a whole hemisphere. But, while the cultures which were cross-fertilizing each other in Europe had resulted from differen-

tiation dating back several tens of thousands of years, those on the more recently occupied American continent had had less time to develop divergences; the picture they offered was relatively homogeneous. Thus, although it would not be true to say that the cultural standard of Mexico or Peru was inferior to that of Europe at the time of the discovery (we have in fact seen that, in some respects, it was superior), the various aspects of culture were possibly less well organized in relation to each other. Side by side with amazing achievements, we find strange deficiencies in the pre-Columbian civilizations; there are, so to speak, gaps in them. They also afford evidence of the coexistence—not so contradictory as it may seem—of relatively advanced forms of culture with others which were abortive. Their organization, less flexible and diversified, probably explains their collapse before a handful of conquerors. And the underlying reason for this may be sought in the fact that the partners to the American cultural "coalition" were less dissimilar from one another than their counterparts in the Old World.

No society is therefore essentially and intrinsically cumulative. Cumulative history is not the prerogative of certain races or certain cultures, marking them off from the rest. It is the result of their *conduct* rather than their *nature*. It represents a certain "way of life" of cultures which depends on their capacity to "go-along-together". In this sense, it may be said that cumulative history is the type of history characteristic of grouped societies—social super-organisms—while stationary history (supposing it to exist) would be the distinguishing feature of an inferior form of social life, the isolated society.

The one real calamity, the one fatal flaw which can afflict a group of men and prevent them from fulfilment is to be alone.

We can thus see how clumsy and intellectually unsatisfactory the generally accepted efforts to defend the contributions of various human races and cultures to civilization often are. We list features, we sift questions of origin, we allot first places. However well-intentioned they may be, these efforts serve no purpose, for, in three respects, they miss their aim. In the first place, there can never be any certainty about a particular culture's credit for an invention or discovery. For 100 years, it was firmly believed that maize had been produced by the American Indians, by crossing wild grasses; this explanation is still accepted for the time being, but there is increasing doubt about it, for it may well be, after all, that

maize was introduced into America (we cannot tell when or how) from South-East Asia.

In the second place, all cultural contributions can be divided into two groups. On the one hand, we have isolated acquisitions or features, whose importance is evident but which are also somewhat limited. It is a fact that tobacco came from America; but after all, and despite the best efforts of international institutions, we cannot feel overwhelmed with gratitude to the American Indians every time we smoke a cigarette. Tobacco is a delightful adjunct to the art of living, as other adjuncts are useful (such as rubber); we are indebted to these things for pleasures and conveniences we should not otherwise enjoy, but if we were deprived of them, our civilization would not rock on its foundations and, had there been any pressing need, we could have found them for ourselves or substituted something else for them.

At the other end of the scale (with a whole series of intermediates, of course), there are systematized contributions, representing the peculiar form in which each society has chosen to express and satisfy the generality of human aspirations. There is no denying the originality and particularity of these patterns, but, as they all represent the exclusive choice of a single group, it is difficult to see how one civilization can hope to benefit from the way of life of another, unless it is prepared to renounce its own individuality. Attempted compromises are, in fact, likely to produce only two results: either the disorganization and collapse of the pattern of one of the groups; or a new combination, which then, however, represents the emergence of a third pattern, and cannot be assimilated to either of the others. The question with which we are concerned, indeed, is not to discover whether or not a society can derive benefit from the way of life of its neighbours, but whether, and if so to what extent, it can succeed in understanding or even in knowing them. We have already seen that there can be no definite reply to this question.

Finally, wherever a contribution is made, there must be a recipient. But, while there are in fact real cultures which can be localized in time and space, and which may be said to have "contributed" and to be continuing their contributions, what can this "world civilization" be, which is supposed to be the recipient of all these contributions? It is not another civilization distinct from all the others, and yet real in the same sense that they are. When we speak of world civilization, we have in mind no single period, no single group of men:

we are employing an abstract conception, to which we attribute a moral or logical significance—moral, if we are thinking of an aim to be pursued by existing societies; logical, if we are using the one term to cover the common features which analysis may reveal in the different cultures. In both cases, we must not shut our eyes to the fact that the concept of world civilization is very sketchy and imperfect, and that its intellectual and emotional content is tenuous. To attempt to assess cultural contributions with all the weight of countless centuries behind them, rich with the thoughts and sorrows, hopes and toil of the men and women who brought them into being, by reference to the sole yard-stick of a world civilization which is still a hollow shell, would be greatly to impoverish them, draining away their life-blood and leaving nothing but the bare bones behind.

We have sought, on the contrary, to show that the true contribution of a culture consists, not in the list of inventions which it has personally produced, but in its difference from others. The sense of gratitude and respect which each single member of a given culture can and should feel towards all others can only be based on the conviction that the other cultures differ from his own in countless ways, even if the ultimate essence of these differences eludes him or if, in spite of his best efforts, he can reach no more than an imperfect understanding of them.

Secondly, we have taken the notion of world civilization as a sort of limiting concept or as an epitome of a highly complex process. If our arguments are valid, there is not, and can never be, a world civilization in the absolute sense in which that term is often used, since civilization implies, and indeed consists in, the coexistence of cultures exhibiting the maximum possible diversities. A world civilization could, in fact, represent no more than a world-wide coalition of cultures, each of which would preserve its own originality.

X. THE COUNTER-CURRENTS OF PROGRESS

We thus surely find ourselves faced with a curious paradox.

Taking the terms in the sense in which we have been using them above, we have seen that all cultural progress depends on a coalition of cultures. The essence of such a coalition is the pooling (conscious or unconscious, voluntary or involuntary, deliberate or accidental, on their own initiative or under compulsion) of the wins which each culture has scored in the course of its historical development. Lastly, we have recognized, that, the greater the diversity between the cultures concerned, the more fruitful such a coalition will be. If this is admitted, we seem to have two conditions which are mutually contradictory. For the inevitable consequence of the practice of *playing as a syndicate*, which is the source of all progress, is, sooner or later, to make the character of each player's resources *uniform*. If, therefore, one of the first requisites is diversity, it must be recognized that the chances of winning become progressively less as the game goes on.

There are, it would seem, two possibilities of remedying this inevitable development. The first would be for each player deliberately to introduce *differences* in his own game; this is possible, because each society (the "player" in our hypothetical illustration) consists of a coalition of denominational, professional and economic groups, and because the society's stake is the sum total of the stakes of all these constituent groups. Social inequalities are the most striking instance of this solution. The great revolutions we have chosen to illustrate our argument—the neolithic and the industrial—were accompanied not only by the introduction of diversity into the body of society, as Spencer perceived, but by the introduction of differences in status between the several groups, particularly from the economic point of view. It was noted a long time ago that the discoveries of the neolithic age rapidly brought about social differentiation, as the great cities of ancient times grew up in the East, and States, castes and classes appeared on the scene. The same applies to the industrial revolution, which was conditioned by the emergence of

a proletariat and is leading on to new and more elaborate forms of exploiting human labour. Hitherto, the tendency has been to treat these social changes as the consequence of the technical changes, the relation of the latter to the former being that of cause and effect. If we are right in our interpretation, this causality (and the succession in time which it implies) must be rejected—as, incidentally, is the general trend in modern science—in favour of a functional correlation between the two phenomena. We may note in passing that recognition of the fact that the historical concomitant of technical progress has been the development of the exploitation of man by man may somewhat temper the pride we are so apt to take in the first of these developments.

The second remedy is very largely modelled on the first: it is to bring into the coalition, whether they will or no, new partners from outside, whose "stakes" are very different from those of the parties to the original coalition. This solution has also been tried and, while the first may roughly be identified with capitalism, the second may well be illustrated by the history of imperialism and colonialism. The colonial expansion of the nineteenth century gave industrial Europe a fresh impetus (which admittedly benefited other parts of the world as well) whereas, but for the introduction of the colonial peoples, the momentum might have been lost much sooner.

It will be apparent that, in both cases, the remedy consists in broadening the coalition, either by increasing internal diversity or by admitting new partners; in fact, the problem is always to increase the number of players or, in other words, to restore the complexity and diversity of the original situation. It is also apparent, however, that these remedies can only temporarily retard the process. Exploitation is possible only within a coalition; there is contact and interchange between the major and the minor parties. They, in turn, in spite of the apparently unilateral relationship between them, are bound, consciously or unconsciously, to pool their stakes and, as time goes by, the differences between them will tend to diminish. This process is illustrated by the social improvements that are being brought about and the gradual attainment of independence by the colonial peoples; although we have still far to go in both these directions, we must know that the trend of developments is inevitable. It may be that the emergence of antagonistic political and social systems should, in fact, be regarded as a third solution; conceivably, by a constant shifting of the grounds of diversity, it may be

possible to maintain indefinitely, in varying forms which will constantly take men unawares, that state of disequilibrium which is necessary for the biological and cultural survival of mankind.

However this may be, it is difficult to conceive as other than contradictory a process which may be summed up as follows: if men are to progress, they must collaborate; and, in the course of their collaboration, the differences in their contributions will gradually be evened out, although collaboration was originally necessary and advantageous simply because of those differences.

Even if there is no solution, however, it is the sacred duty of mankind to bear these two contradictory facts in mind, and never to lose sight of the one through an exclusive concern with the other; man must, no doubt, guard against the blind particularism which would restrict the dignity of humankind to a single race, culture or society; but he must never forget, on the other hand, that no section of humanity has succeeded in finding universally applicable formulae, and that it is impossible to imagine mankind pursuing a single way of life for, in such a case, mankind would be ossified.

From this point of view our international institutions have a tremendous task before them and bear a very heavy responsibility. Both task and responsibility are more complex than is thought. For our international institutions have a double part to play; they have firstly, to wind up the past and, secondly to issue a summons to fresh activity: In the first place, they have to assist mankind to get rid, with as little discomfort and danger as possible, of those diversities now serving no useful purpose, the abortive remnants of forms of collaboration whose putrefying vestiges represent a constant risk of infection to the body of international society. They will have to cut them out, resorting to amputation where necessary, and foster the development of other forms of adaptation.

At the same time, they must never for a moment lose sight of the fact that, if these new forms are to have the same functional value as the earlier forms, they cannot be merely copied or modelled on the same pattern; if they were, they would gradually lose their efficacy, until in the end they would be of no use at all. International institutions must be aware, on the contrary, that mankind is rich in unexpected resources, each of which, on first appearance, will always amaze men; that progress is not a comfortable "bettering of

what we have", in which we might look for an indolent repose, but is a succession of adventures, partings of the way, and constant shocks. Humanity is forever involved in two conflicting currents, the one tending towards unification, and the other towards the maintenance or restoration of diversity. As a result of the position of each period or culture in the system, as a result of the way it is facing, each thinks that only one of these two currents represents an advance, while the other appears to be the negation of the first. But we should be purblind if we said, as we might be tempted to do, that humanity is constantly unmaking what it makes. For, in different spheres and at different levels, both currents are in truth two aspects of the same process.

The need to preserve the diversity of cultures in a world which is threatened by monotony and uniformity has surely not escaped our international institutions. They must also be aware that it is not enough to nurture local traditions and to save the past for a short period longer. It is diversity itself which must be saved, not the outward and visible form in which each period has clothed that diversity, and which can never be preserved beyond the period which gave it birth. We must therefore hearken for the stirrings of new life, foster latent potentialities, and encourage every natural inclination for collaboration which the future history of the world may hold; we must also be prepared to view without surprise, repugnance or revolt whatever may strike us as strange in the many new forms of social expression. Tolerance is not a contemplative attitude, dispensing indulgence to what has been or what is still in being. It is a dynamic attitude, consisting in the anticipation, understanding and promotion of what is struggling into being. We can see the diversity of human cultures behind us, around us, and before us. The only demand that we can justly make (entailing corresponding duties for every individual) is that all the forms this diversity may take may be so many contributions to the fullness of all the others.

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